Massive hematuria in a renal tuberculosis patient

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ABSTRACT

Background: Renal tuberculosis makes up 27% of the extrapulmonary forms of this infection. It is asymptomatic until the destruction of the renal parenchyma causes symptomatology - a progression which takes place over a long period of time.

Clinical case: The patient is a 41-year-old man, country dweller, presenting with type 2 diabetes (treated with oral hypoglycemic medication) and high blood pressure (treated with angiotensin converting enzyme (ACE) inhibitors). Patient was evaluated in the emergency room presenting with hematuria and acute urine retention for which 18 Fr transurethral catheter was placed. Despite bladder washout, bladder did not drain and so cystoscopy was performed. Significant urethral stricture, blood clots in the bladder (1000mL) and severely damaged bladder floor mucosa was observed. The left meatus was not able to be seen nor was any active bleeding site observed. Computerized tomography was ordered as part of hematuria protocol and magnetic resonance study was done when left tumor was suspected. Right nephrectomy was performed on the patient based on complex renal cyst diagnosis as well as due to the risk of massive bleeding.

Histopathological diagnosis stated acute and chronic granulomatous inflammation compatible with tuberculosis process that was confirmed by Ziehl-Neelsen stain.

Conclusions: Massive hematuria is uncommon in renal tuberculosis. Only 10% of patients present with macroscopic hematuria while 50% present with microscopic hematuria.

Key words: renal tuberculosis, extrapulmonary tuberculosis, Mexico.

RESUMEN

Antecedentes: La tuberculosis renal constituye 27% de las formas extrapulmonares de esta infección y es asintomática hasta que la destrucción del parénquima renal origina sintomatología; esta evolución sucede después de un largo periodo de tiempo.

Caso clínico: Hombre de 41 años, residente de medio rural, diabético tipo 2, en tratamiento con hipoglucemiantes orales, e hipertenso en tratamiento con inhibidores de la enzima convertidora de la angiotensina (IECAS). Fue valorado en el servicio de urgencias por presentar hematuria y cuadro de retención aguda de orina. Por ello se le colocó sonda transuretral de 18 Fr. A pesar del lavado vesical, no se drenó la vejiga, por lo que se realizó cistoscopia. Se observó estenosis uretral importante, coágulos hemáticos en la vejiga (1000 mL), mucosa inflamada y esfacelada en el piso; no se visualizó el meato izquierdo, ni algún sitio de sangrado activo. Como parte del protocolo de hematuria, se solicitó tomografía computarizada y, por sospecha de tumoración izquierda, se solicitó resonancia magnética. El paciente se trató con nefrectomía derecha, con base en el diagnóstico de quiste renal complejo, así como por el riesgo de sangrado masivo.

El diagnóstico histopatológico se integró como infección tuberculosa y por sospecha de enfermedad tuberculosa izquierda, se realizó resonancia magnética. El paciente se trató con nefrectomía derecha, con base en el diagnóstico de enfermedad renal compleja, así como por el riesgo de sangrado masivo.

Conclusión: La hematuria masiva es infrecuente en la tuberculosis renal y sólo 10% de los pacientes presentan hematuria macroscópica, mientras que 50% de los casos presentan microscópica.

Palabras clave: Tuberculosis renal, tuberculosis extrapulmonar, México.

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**INTRODUCTION**

The topic of tuberculosis is an important one to be addressed. Presently eight to ten million cases are diagnosed per year internationally and both the diagnostic and preventive methods used have been ineffective in containing this epidemic, which is the first cause of death from infection worldwide. The prevalence of pulmonary tuberculosis with renal tuberculosis is 66%.

In renal tuberculosis pathogenesis, *Mycobacterium* is propagated by bacillemia after a pulmonary tuberculosis episode. The microorganism settles in the blood vessels adjacent to the glomeruli. Here the lesion may heal or progress towards destruction by necrosis and by the later formation of granulomas.1

Renal tuberculosis is more frequent in men with a 2:1 ratio and usually is asymptomatic for a long period of time. When symptoms begin to manifest they are non-characteristic, given that their manifestation is dependent on the degree of renal destruction.4 Among the most frequent symptoms are non-painful frequent urination, polyuria, renal or suprapubic pain, sterile pyuria and macroscopic hematuria.

Macroscopic hematuria presents in only 10% of cases and microscopic hematuria presents in 50%. It is common in this pathology for the patient to seek medical attention for recurring cystitis and the urologist should suspect this pathology as its possible cause.5,6 Among the radiological studies that can be used are simple abdominal X-ray for showing calcifications allowing for differentiation between schistosomiasis and calcified abscesses. Excretory urography evaluates functional and morphological elements of the urinary tract and shows some kind of alteration in 95% of patients with renal tuberculosis. However, there is no pathognomic sign of the disease and the alterations found are related to tuberculosis-generated destruction. Computed tomography (CT) has substituted excretory urography and findings are also related to the degree of destruction generated by the disease.

**CASE PRESENTATION**

The patient is a 41-year-old man, resident of a rural locality, with no history of smoking or alcoholism but presents with both type 2 diabetes managed irregularly with glibenclamide and metformin and high blood pressure treated with captopril. The patient was admitted to the emergency room with diagnosis of hematuria and acute urine retention. An 18 Fr transurethral catheter was placed for bladder washout but bladder was not emptied. Therefore cystoscopy was done which showed important urethral stricture, clots coming from the bladder (1000 mL), and severely damaged bladder floor mucosa. Left meatus was not able to be observed and no site with active bleeding was seen. Abdominal CT was ordered as part of hematuria protocol and revealed anatomical loss in the left kidney with apparent image of a hydronephrotic sac with lobulated contours that was catalogued as a left complex renal cyst because it presented with calcifications. The walls were enhanced by contrast medium and a hypodense lesion was observed in the right kidney. Nuclear magnetic resonance study was ordered upon suspicion of neoplasia and right neoplastic lesion was ruled out and complex renal cyst and anatomical loss in left kidney continued to be observed. A decrease to 10 g of hemoglobin was observed when comparing the laboratory results upon admission and the control done at 24 hours and the decision to perform left radical nephrectomy was made due to suspicion of left complex renal cyst bleeding and risk of repeat bleeding.

The patient presented as a case of massive hematuria and complementary studies led to diagnosis of complex renal cyst with high probability of repeat bleeding for which treatment was radical nephrectomy. Surgical findings were 18 cm x 9 cm x10 cm surgical specimen that when cut revealed cystic cavities with hematic liquid inside, yellowish septa and hard and thickened collector system, including the ureter.

Histopathological report: Macroscopic; miliary image correlated with renal tuberculosis was observed.
inside the collector system (Image 3) in the renal pelvis. Microscopic; chronic acute granulomatous inflammation compatible with tuberculosis process was observed and Ziehl-Neelsen stain confirmed renal tuberculosis diagnosis.

**DISCUSSION**

Clinical presentation of this case of massive hematuria secondary to renal tuberculosis was atypical starting with the principal sign that was acute urine retention from a firm clot in the bladder. Cystoscopy did not show typical urinary tuberculosis alterations in bladder mucosa such as granulations, ulcers, “golf-hole” ureter, scarring lesions, or ulcerated cystitis - alterations considered to be among the most frequent in the medical literature.6

Once extension studies, tomography and magnetic resonance studies were carried out patient was diagnosed with complex renal cyst due to lobulations that were enhanced by contrast medium and to scarce calcifications. Emergency radical nephrectomy was performed due to risk of repeat bleeding.

Histopathological diagnosis of renal tuberculosis enabled systemic management to be initiated resulting in improvement of patient’s condition of health, weight gain, absence of hematuria, and limitation of disease progression.

Tuberculosis is an entity that is increasing in incidence in the population and the complexity of its diagnosis is dependent on the amount of time of disease progression, especially in extrapulmonary form. It is necessary for detection techniques to become faster, more efficient, and lower in cost in order to arrive at disease diagnosis.7
No single radiological study gives a classic image of renal tuberculosis. Therefore it must be suspected, since changes will be related to the type of kidney damage there is and differential diagnosis will have to be made with other pathologies in which calcifications, pyelocaliceal dilatations and extrarenal collections or lesions can be found.

Medical treatment is with rifampicin, isoniazid and pyrazinamide or ethambutol for 60 doses followed by isoniazid and rifampicin until completing 45 doses. Treatment should be maintained for another 3-6 months in men due to the possibility of prostate affectation.

BIBLIOGRAPHY